Check List the journal of biodiversity data

LISTS OF SPECIES

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Checklist of horse flies (Diptera: Tabanidae) from Taquaruçu, Tocantins, Brazil, with new records for the state

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Abstract: A list of horse fly species is presented for the district of Taquaruçu, Palmas, Tocantins, Brazil . A total of 34 species and three varieties were recorded over one year of collections. From those, 21 species and one variety were new records for the state.

Key words: Brazilian Cerrado, Diachlorini, Pangoniini, Scionini, Tabanini

INTRODUCTION

Tabanids belong to the order Diptera and are commonly known as horse flies and deer flies. These flies occur worldwide, and there are about 4,434 species distributed among 156 genera (Pape et al. 2011). From the 1.205 species cataloged in the Neotropical region (Henriques et al. 2012), about 500 species occur in Brazil (Carvalho et al. 2012).

The study of tabanids in the Cerrado biome, however, is still scarce, because the Northeast region and the North and Mid-West Cerrado regions are the least sampled for this taxon in Brazil (Krolow and Henriques in press). Because the state of Tocantins is composed mainly of Cerrado areas, there is little known about its tabanid fauna and no specific study or survey has ever been conducted in the region. Species' records for the state are sporadic, usually by occasional collections, never by systematized and intensive collections.

The aim of this study is to expand the knowledge on the tabanid fauna in Cerrado areas of Tocantins by providing the first list of species for the state, based on new collections made in the Palmas municipality.

MATERIAL AND METHODS

Collections were conducted from 20 April 2012 to 19 April 2013 at the Encantada Farm Inn, district of Taquaruçu, in the Environmental Protection Area (APA) of Serra do Lajeado, Palmas, Tocantins state, Brazil (Figure 1). Two Malaise traps (model: Townes 1972) were used uninterruptedly over a year, one placed inside a Gallery Forest (10°14′57.0″ S, 048°07′35.4″ W) and another placed in a typical Cerrado area (10°15′02.3″ S, 048°07′33.6″ W), where weekly collections were taken making up a total of 104 samples. Additionally, four manual collections were also carried out using a horse as bait: two during the drought period (16–17 July and 22–23 September 2012), and two during the rainy season (29–30 November 2012 and 23–24 March 2013), with a sampling effort of 13 hours per day (06:00 h to 19:00 h).

Species identification was made using identification keys, taxonomical reviews, original descriptions (Barretto 1946; Fairchild 1958, 1965, 1976, 1983, 1984, 1985; Fairchild and Philip 1960; Coscarón 1979; Coscarón and Fairchild 1976; Fairchild and Wilkerson 1981, 1986; Wilkerson and Fairchild 1983; Fairchild and Rafael 1985; Gorayeb and Fairchild 1987; Burger 1999; Coscarón and Papavero 2009a; Limeira-de-Oliveira et al. 2009; Krolow and Henriques 2010) and direct comparisons with samples from the Invertebrates Collection of Instituto Nacional de Pesquisas da Amazônia (INPA). For occurrence and distribution records data, the following publications were consulted: Henriques and Gorayeb (1993), Fairchild and Burger (1994), Henriques (1995) and Coscarón and Papavero (2009b). The specimens collected will be deposited in the Entomological Collection of Universidade Federal do Tocantins (CEUFT) and INPA's Invertebrates Collection.

RESULTS

A total of 938 tabanids from two subfamilies (Pangoniinae and Tabaninae), four tribes, 13 genera, 34 species and three varieties were collected, from which only nine species and two varieties had been previously recorded

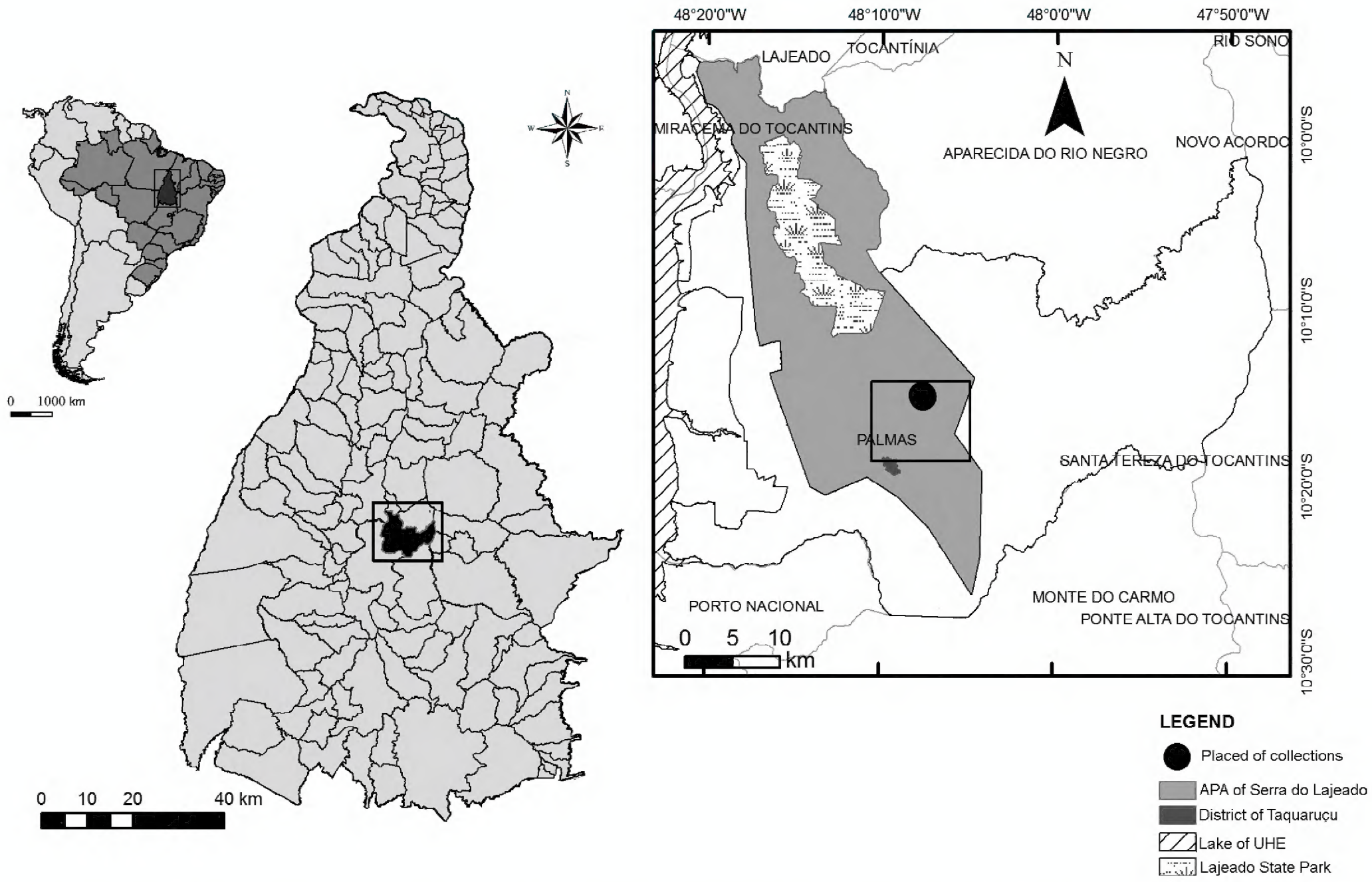

Figure 1. Map with the sample points at the Encantada Farm Inn, district of Taquaruçu, Palmas, Tocantins state, Brazil.

for the Tocantins state. Twenty-one species and one variety are new records, while four species have been identified only to the genus level. Three of those are possibly new species.

List of species:
(*New records for Tocantins state)
Subfamily Pangoniinae
Tribe Pangoniini

***Esenbeckia (Esenbeckia) osornoi** Fairchild, 1942

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 01–08.vi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 08–15.vi.2012 (6♀ CEUFT); *idem*, 15–22.vi.2012 (2♀ CEUFT); *idem*, 22–29.vi.2012 (1♀ INPA); *idem*, 29.vi–06.vii.2012, (1♀ CEUFT); *idem*, 06–13.vii.2012 (3♀ CEUFT); *idem*, 03–10.viii.2012 (1♂, 6♀ CEUFT); *idem*, 10–17.viii.2012 (17♀ CEUFT); *idem*, 17–24.viii.2012 (4♀ CEUFT); *idem*, 24–31.viii.2012 (2♀ CEUFT); *idem*, 31.viii–07.ix.2012 (1♂, 2♀ CEUFT); *idem*, 07–14.ix.2012 (2♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 22-29.vi.2012 (1♀ CEUFT); *idem*, 03–10.viii.2012 (1♀ INPA); *idem*, 17-24.viii.2012 (1♀ INPA); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (9♀ CEUFT; 1♀ INPA).

Updated Distribution: Costa Rica to Colombia, Venezuela, Trinidad, Guiana, Suriname, Brazil (Amapá, Pará, Tocantins, Rondônia, Bahia).

***Esenbeckia (Proboscoides) farraginis** Fairchild & Wilkerson, 1981

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°15′02.3″ S, 048°07′33.6″ W, 11-18.v.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT).

Updated Distribution: Brazil (Tocantins, Goiás).

Tribe Scionini

***Fidena (Fidena) bistriga** Fairchild & Rafael, 1985

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 02-09.xi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (3♀ CEUFT); *idem*, 09-16.xi.2012 (9♀ CEUFT); *idem*, 16-23.xi.2012 (1♂, 12♀ CEUFT); *idem*, 23-30.xi.2012 (4♀ CEUFT); *idem*, 30.xi.2012 (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 09-16.xi.2012 (1♀ INPA); *idem*, 30.xi-07.xii.2012 (1♀ INPA); *idem*, 07-14.xii.2012 (3♀ INPA).

Updated Distribution: Brazil (Pará, Tocantins, Mato Grosso, Rondônia), Peru.

*__Fidena (Fidena) castanea__ (Perty, 1833)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 08–15.vi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (6♀ CEUFT).

Updated Distribution: Brazil (Tocantins, Mato Grosso, Bahia, Goiás, Minas Gerais, São Paulo), Ecuador (Napo).

*__Fidena (Fidena) fumifera__ (Walker, 1854)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 01–08.vi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 15–22.vi.2012 (2♀ INPA); *idem*, 29.vi–06.vii.2012 (1♀ CEUFT); *idem*,10°15′02.3″ S, 048°07′33.6″ W, 08–15.vi.2012 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (6♀ CEUFT).

Updated Distribution: Brazil (Pará, Tocantins, Mato Grosso).

__Fidena (Fidena) lissorhina__ Gorayeb & Fairchild, 1987

Comments: A few specimens collected in alcohol showed slight morphological differences from other material collected and from the original description. For example, while the alcohol specimens showed clypeus with some orange areas, pale antennae, silver eyes and white callus, the original description made by Gorayeb and Fairchild (1987) showed clypeus reddish-brown, reddish ocelli and yellowish-orange antennae. Therefore, the series that presented those differences was separated as Additional examined material. Males from both series follow the same pattern of variation found on females.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 09–16.xi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (14♀ CEUFT); *idem*, 16–23.xi.2012 (1♀ CEUFT); *idem*, 25.i–01.ii.2013 (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 09–16.xi.2012 (1♂, CEUFT; 1♀ INPA); *idem*, 16–23.xi.2012 (1♂, CEUFT; 1♀ INPA); *idem*, 30.xi–07.xii.2012 (1♀ CEUFT); *idem*, 14–21.xii.2012 (1♀ CEUFT); *idem*, 18–25.i.2013 (4♀ CEUFT); *idem*, 25.i–01.ii.2013 (1♀ CEUFT); *idem*, 08–15.ii.2013 (2♀ INPA); *idem*, 22.ii–01.iii.2013 (1♀ CEUFT); *idem*, 01–08.iii.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 29.xi.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (14♀ CEUFT); *idem*, 30.xi.2012 (41♀ CEUFT; 1♀ INPA).

Additional examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 30.xi–07.xii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ INPA); *idem*, 21–28.xii.2012 (1♀ INPA); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 02–09.xi.2012 (1♂, CEUFT); *idem*, 09–16.xi.2012 (1♀ CEUFT); *idem*, 16–23.xi.2012 (6♀ CEUFT); *idem*, 23–30.xi.2012 (3♀ INPA); *idem*, 28.xii.2012–04.i.2013 (1♀ CEUFT).

Distribution: Brazil (Pará, Tocantins).

Previous records in Tocantins: Araguacema municipality (Henriques 1995).

Subfamily Tabaninae
Tribe Diachlorini

*__Acanthocera (Acanthocera) fairchildi__ Henriques & Rafael, 1993

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 26.x-02.xi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (2♀ CEUFT).

Updated Distribution: Brazil (Pará, Amazonas, Tocantins, Acre, Rondônia), Bolivia, Peru.

*__Catachlorops (Catachlorops) halteratus__ Kröber, 1931

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 09–16.xi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT).

Updated Distribution: Guiana, Suriname, French Guiana, Brazil (Roraima, Pará, Amazonas, Maranhão, Tocantins, Mato Grosso, Rondônia), Peru (Loreto).

*__Catachlorops (Catachlorops) rufescens__ (Fabricius, 1805)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 08–15.vi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (4♀ CEUFT); *idem*, 22–29.vi.2012 (1♀ CEUFT); *idem*, 29.vi–06.vii.2012 (1♀ CEUFT); *idem* 06–13.vii.2012 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (11♀ CEUFT; 5♀ INPA).

Updated Distribution: Guiana, French Guiana, Brazil (Roraima, Pará, Amazonas, Maranhão, Tocantins, Mato Grosso, Rondônia).

__Catachlorops (Catachlorops) sp.__

Comments: Only one specimen was collected, which could not be identified to the species level. It is possibly a new species, but a larger series is needed.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (1♀ CEUFT).

*__Catachlorops (Hadrochlorops) unicolor__ (Lutz, 1912)

Comments: It is the only species from the subgenus with distribution on regions close to Tocantins, and occurrence in the state of Goiás. Most of its morphological characters match the original description by Lutz

(1912) and another specimen identified by Fairchild (1961). Nevertheless, the antenna from the collected specimen is darker than the palpus, and only the anterior tibia is paler than the other leg segments showing a dark brown apex, while Lutz's specimen shows antenna colored as the palpus and all tibiae paler than the other leg segments. An aggravating factor is that in all aforementioned studies the specimens used were a little damaged (no hairs and greasy), which makes visualization and identification of some characters difficult. Still, due to the congruence of most characters this specimen was identified as *C. unicolor*.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (1♀ CEUFT).

Updated Distribution: Brazil (Tocantins, Mato Grosso, Goiás).

***Catachlorops (Psalidia) rubiginosus** (Summers, 1911).

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 20–27.vii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 27.vii–03.viii.2012 (1♀ CEUFT); *idem*, 03–10.viii.2012 (2♀ CEUFT); *idem*, 10—17.viii.2012 (4♀ CEUFT); *idem*, 17–24.viii.2012 (4♀ INPA); *idem*, 24–31.viii.2012 (10♀ CEUFT); *idem*, 31.viii–07.ix.2012 (10♀ CEUFT); *idem*, 07–14.ix.2012 (3♀ CEUFT); *idem*, 14–21.ix.2012 (7♀ CEUFT); *idem*, 21–28.ix.2012 (6♀ CEUFT); *idem*, 28.ix–05.x.2012 (4♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 14–21.ix.2012 (1♀ INPA).

Updated Distribution: Guiana, Brazil (Pará, Amazonas, Tocantins, Mato Grosso), Peru.

***Catachlorops (Psarochlorops) aff. maculatus** Burger, 1999

Comments: This series differs in some characters from the description made by Burger (1999), since collected specimen were a little smaller in body and wing size, showed frontal callus ridge-like, subcallus greyish brown, escape and pedicel dark yellow, palpus bright yellow; scutellum with brighter apex, femora brown with golden yellow and dark brown hairs; and no visible triangles in the abdomen.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 27.vii–03.viii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 24–31.viii.2012 (2♀ CEUFT); *idem*, 31.viii–07.ix.2012 (2♀ CEUFT); *idem*, 21–28.ix.2012 (1♀ CEUFT).

Chlorotabanus inanis (Fabricius, 1787)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 27.vii–03.viii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 03–10.viii.2012 (3♀ INPA); *idem*, 10–17.viii.2012 (2♀ CEUFT); *idem*, 24–31.viii.2012 (2♀ CEUFT); *idem*, 31.viii–07.ix.2012 (2♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 16.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (1♀ CEUFT); *idem*, 23.ix.2012, Lima, H.I.L. & Alves, L. leg. (2♀ CEUFT).

Distribution: South of Mexico to South of Brazil.

Previous records in Tocantins: Itaguatins municipality (Henriques and Gorayeb 1993).

Dichelacera (Dichelacera) antunesi Fairchild & Philip, 1960

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 12–19.x.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (3♀ CEUFT); *idem*, 19–26.x.2012 (4♀ CEUFT); *idem*, 26.x–02.xi.2012 (2♀ CEUFT); *idem*, 02–09.xi.2012 (2♀ INPA); *idem*, 09–16.xi.2012 (2♀ CEUFT); *idem*, 16–23.xi.2012 (2♀ INPA); *idem*, 30.xi–07.xii.2012 (1♀ INPA); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 16–23.xi.2012 (2♀ CEUFT); *idem*, 07–14.xii.2012 (1♀ CEUFT).

Distribution: Brazil (Tocantins, Bahia, Goiás, Rio de Janeiro, Espírito Santo).

Previous records in Tocantins: Itaguatins municipality (Henriques and Gorayeb 1993).

***Dicladocera mutata** Fairchild, 1958

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 10–17.viii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 24–31.viii.2012 (2♀ CEUFT); *idem*, 07–14.ix.2012 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 22.ix.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT); *idem*, 23.ix.2012 (1♀ CEUFT).

Updated Distribution: Brazil (Tocantins, Goiás).

***Lepiselaga (Conoposelaga) aberrans** Lutz, 1913

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 01.iii.2013, Coleta manual, Lima, H. I. L. leg. (1♀ CEUFT).

Updated Distribution: Brazil (Tocantins, Bahia, Minas Gerais, São Paulo), Paraguai.

Leucotabanus exaestuans (Linnaeus, 1758)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 21–28.ix.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ INPA); *idem*, 26.x–02.xi.2012 (1♀ CEUFT); *idem*, 02–09.xi.2012 (1♀ CEUFT); *idem*, 05–12.iv.2013 (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 07–14.xii.2012 (1♀ CEUFT); *idem*, 15–22.ii.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″

W, 23.iii.2013, Isca Equina, Lima, H.I.L. & Aguiar,M.D. leg. (1♀ CEUFT; 1♀ INPA); *idem*, 24.iii.2013 (1♀ CEUFT).

Distribution: Mexico to Northern Argentina, Bolivia, Brazil and Trinidad.

Previous records in Tocantins: Filadélfia municipality (Henriques and Gorayeb 1993).

***Philipotabanus (Mimotabanus) henriquesi** Limeira-de-Oliveira, Gorayeb & Rafael, 2009

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′59.91″ S, 048°07′30.84″ W, 30.xi.2012, Isca Equina, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT).

Updated Distribution: Brazil (Maranhão, Tocantins).

***Stypommisa aripuana** Fairchild & Wilkerson, 1986

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 08–15.vi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (2♀ CEUFT); *idem*, 15–22.vi.2012 (6♀ CEUFT); *idem*, 22–29.vi.2012 (4♀ CEUFT); *idem*, 29.vi–06.vii.2012 (3♀ CEUFT); *idem*, 06–13.vii.2012 (2♀ CEUFT); *idem*, 13–20.vii.2012 (5♀ CEUFT); *idem*, 20–27.vii.2012 (3♀ INPA); *idem* 27.vii–03.viii.2012 (8♀ CEUFT); *idem* 03–10.viii.2012 (20♀ CEUFT); *idem*, 10–17.viii.2012 (14♀ CEUFT); *idem*, 17–24.viii.2012 (12♀ CEUFT); *idem*, 24–31.viii.2012 (20♀ CEUFT); *idem*, 31.viii–07.ix.2012 (30♀ CEUFT); *idem*, 07–14.ix.2012 (45♀ CEUFT); *idem*, 14–21.ix.2012 (11♀ CEUFT); *idem*, 21–28.ix.2012 (6♀ CEUFT); *idem*, 28.ix–05.x.2012 (2♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 22–29.vi.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (62♀ CEUFT; 2♀ INPA).

Updated Distribution: Brazil (Tocantins, Mato Grosso, Rondônia).

***Stypommisa glandicolor** (Lutz, 1912)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 21–28.ix.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (5♀ CEUFT); *idem*, 28.ix–05.x.2012 (8♀ CEUFT); *idem*, 05–12.x.2012 (21♀ CEUFT); *idem*, 12–19.x.2012 (31♀ CEUFT); *idem*, 19–26.x.2012 (19♀ CEUFT); *idem*, 26.x–02.xi.2012 (3♀ INPA); *idem*, 02–09.xi.2012 (4♀ CEUFT); *idem*, 09–16.xi.2012 (1♀ CEUFT; 2♀ INPA); *idem*, 16–23.xi.2012 (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 05–12.x.2012 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 29.xi.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT).

Updated Distribution: Costa Rica, Colombia, Suriname, French Guiana, Peru, Bolivia, Brazil (Amapá, Pará, Amazonas, Tocantins, Acre, Mato Grosso, Rondônia).

***Stypommisa* sp. 1**

Comments: Only one specimen was collected, but because its antennae were lost, it could not be identified.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′59.91″ S, 048°07′30.84″ W, 23.ix.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT).

Tribe Tabanini

***Poeciloderas quadripunctatus** (Fabricius, 1805)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 13–20.iv.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 27.iv–04.v.2012 (1♀ CEUFT); *idem*, 11–18.v.2012 (1♀ CEUFT); *idem*, 14–21.ix.2012 (2♀ INPA); *idem*, 21–28.ix.2012 (2♀ CEUFT); *idem*, 05–12.x.2012 (2♀ INPA); *idem*, 23–30.xi.2012 (1♀ CEUFT); *idem*, 30.xi–07.xii.2012 (1♀ CEUFT); *idem*, 21–28.xii.2012 (1♀ CEUFT); *idem*, 04–11.i.2013 (1♀ CEUFT); *idem*, 11–18.i.2013 (1♀ CEUFT); *idem*, 18–25.i.2013 (1♀ CEUFT); *idem*, 22.ii–01.iii.2013 (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 27.iv–04.v.2012 (1♀ CEUFT); *idem*, 04–11.v.2012 (1♀ CEUFT); *idem*, 11–18.v.2012 (1♀ CEUFT); *idem*, 16–23.xi.2012 (1♀ CEUFT); *idem*, 30.xi–07.xii.2012 (1♀ CEUFT); *idem*, 04–11.i.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (3♀ CEUFT); *idem*, 23.ix.2012, *idem*, Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT); *idem*, 29.xi.2012 (1♀ CEUFT); *idem*, 30.xi.2012 (2♀ CEUFT; 1♀ INPA); *idem*, 23.iii.2013, *idem*, Lima, H.I.L. & Aguiar,M.D. leg. (6♀ CEUFT); *idem*, 24.iii.2013 (2♀ CEUFT).

Distribution: Mexico to Argentina (Salta, Catamarca, Misiones, Tucumã, Entre Ríos, Buenos Aires).

Previous records: This is a species having a wide distribution with records for all the Neotropics (Coscarón and Papavero 2009b).

***Tabanus antarcticus** Linnaeus, 1758

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 18–25.v.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (2♀ INPA); *idem*, 08–15.vi.2012 (1♀ CEUFT); *idem*, 12–19.x.2012 (1♀ CEUFT); *idem*, 19–26.x.2012 (1♀ CEUFT); *idem*, 26.x–02.xi.2012 (2♀ INPA); *idem*, 02–09.xi.2012 (1♀ CEUFT); *idem*, 09–16.xi.2012 (1♀ CEUFT); *idem*, 16–23.xi.2012 (2♀ CEUFT); *idem*, 21–28.xii.2012 (1♀ INPA); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 04–11.v.2012 (3♀ CEUFT); *idem*, 23–30.xi.2012 (1♀ CEUFT); *idem*, 30.xi–07.xii.2012 (2♀ CEUFT); *idem*, 08–15.ii.2013 (1♀ CEUFT); *idem*, 22–29.iii.2013 (3♀ CEUFT); *idem*, 12–19.iv.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (1♀ CEUFT); *idem*, 23.iii.2013, Lima, H.I.L. & Aguiar,M.D. leg. (2♀ CEUFT); *idem*, 29.xi.2012, Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT); *idem*, 30.xi.2012 (1♀ CEUFT).

Updated Distribution: Venezuela, Trinidad,

Suriname until Peru and Brazil (Amazon Basin, Tocantins, Bahia).

*__Tabanus cf. cicur__ Fairchild, 1942

Comments: Some characters, such as shape and color of antenna and color of frontal callus, show many morphological differences to the species redescription, made by Fairchild (1983) in his genus review. The author himself discusses the species morphological plasticity, which possibly belongs to a complex of species that remains taxonomically unsolved.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°15′02.3″ S, 048°07′33.6″ W, 13–20.iv.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 16–23.xi.2012 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (1♀ CEUFT); *idem*, 23.ix.2012, *idem*, Lima, H.I.L. & Alves, L. leg. (2♀ CEUFT).

Updated Distribution: Colombia, Guiana, Brazil (Pará, Tocantins), Ecuador, Bolivia.

*__Tabanus fuscofasciatus__ Macquart, 1838

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′59.91″ S, 048°07′30.84″ W, 22.ix.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT).

Updated Distribution: Brazil (Tocantins to Rio Grande do Sul), Bolivia, Paraguai, Argentina (Salta, Formosa, Chaco, Misiones, Santa Fé, Entre Ríos), Uruguai.

*__Tabanus glaucus__ Wiedemann, 1819.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada,10°15′02.3″ S, 048°07′33.6″ W, 02–09.xi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (2♀ CEUFT); *idem*, 09–16.xi.2012 (1♀ CEUFT); *idem*, 16–23.xi.2012 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 29.xi.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (3♀ CEUFT); *idem*, 30.xi.2012 (1♀ CEUFT; 3♀ INPA).

Updated Distribution: east Colombia, Venezuela, Trinidad, Brazil (Pará, Amazonas, Tocantins, Mato Grosso, Rondônia, São Paulo), Peru, Bolivia.

__Tabanus importunus__ Wiedemann, 1828

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 24–31.viii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (4♀ CEUFT); *idem*, 31.viii–07.ix.2012 (1♀ CEUFT); *idem*, 07–14.ix.2012 (1♀ CEUFT); *idem*, 14–21.ix.2012 (4♀ CEUFT; 2♀ INPA); *idem*, 21–28.ix.2012 (2♀ CEUFT); *idem*, 28.ix–05.x.2012 (2♀ CEUFT); *idem*, 05–12.x.2012 (2♀ CEUFT; 2♀ INPA); *idem*, 19–26.x.2012 (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 07–14.ix.2012 (1♀ CEUFT); *idem*, 14–21.ix.2012 (1♀ CEUFT); *idem*, 21–28.ix.2012 (1♀ CEUFT); *idem*, 28.ix–05.x.2012 (1♀ CEUFT); *idem*, 12–19.x.2012 (1♀ CEUFT); *idem*, 23–30.xi.2012 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 22.ix.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (3♀ CEUFT); *idem*, 23.ix.2012 (4♀ CEUFT; 1♀ INPA).

Distribution: Trinidad, Panama, Guiana to Southern of Brazil, Peru, Bolivia, Paraguai.

Previous records in Tocantins: Itaguatins municipality (Henriques and Gorayeb 1993).

__Tabanus mucronatus__ Fairchild, 1961

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 29.iii–05.iv.2013, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 13–20.iv.2012 (2♀ CEUFT); *idem*, 15–22.ii.2013 (1♀ CEUFT); *idem*, 29.iii–05.iv.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 23.iii.2013, Isca Equina, Lima, H.I.L. & Aguiar,M.D. leg. (2♀ CEUFT); *idem*, 24.iii.2013 (1♀ CEUFT).

Distribution: Brazil (Pará, Tocantins, Goiás), ?Bolivia.

Previous records in Tocantins: Araguaína municipality (Henriques and Gorayeb 1993).

*__Tabanus occidentalis__ var. __consequa__ Walker, 1850, *sensu* Fairchild and Burger (1994)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°15′02.3″ S, 048°07′33.6″ W, 13–20.iv.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (2♀ INPA); *idem*, 15–22.iii.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 23.iii.2013, Isca Equina, Lima, H.I.L. & Aguiar, M.D. leg. (1♀ CEUFT).

Updated Distribution: Brazil (Pará, Tocantins).

__Tabanus occidentalis__ var. __dorsovittatus__ Macquart, 1855, *sensu* Fairchild and Burger (1994)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 13–20.vii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 14–21.ix.2012 (1♀ CEUFT); *idem*, 21–28.ix.2012 (2♀ CEUFT); *idem*, 05–12.x.2012 (2♀ CEUFT); *idem*, 19–26.x.2012 (5♀ CEUFT); *idem*, 26.x–02.xi.2012 (1♀ CEUFT); *idem*, 02–09.xi.2012 (4♀ CEUFT); *idem*, 09–16.xi.2012 (1♀ CEUFT); *idem*, 30.xi–07.xii.2012 (2♀ CEUFT); *idem*, 28.xii.2012–04.i.2013 (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 11–18.v.2012 (1♀ CEUFT); *idem*, 02–09.xi.2012 (2♀ INPA); *idem*, 09–16.xi.2012 (1♀ CEUFT); *idem*, 16–23.xi.2012 (4♀ CEUFT); *idem*, 23–30.xi.2012 (2♀ CEUFT); *idem*, 30.xi–07.xii.2012 (7♀ CEUFT; 2♀ INPA); *idem*, 07–14.xii.2012 (2♀ CEUFT); *idem*, 21–28.xii.2012 (3♀ CEUFT); *idem*, 28.xii.2012–04.i.2013 (1♀ CEUFT); *idem*, 04–11.i.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (1♀ INPA); *idem*, 23.ix.2012, Lima, H.I.L. &

Alves, L. leg. (1♀ CEUFT); *idem*, 29.xi.2012 (8♀ CEUFT); *idem*, 30.xi.2012 (13♀ CEUFT); *idem*, 23.iii.2013, *idem*, Lima, H.I.L. & Aguiar, M.D. leg. (1♀ CEUFT); *idem*, 24.iii.2013 (2♀ CEUFT).

Distribution: Mexico to Argentina.

Previous records: species of wide distribution with records throughout the Neotropics (Coscarón and Papavero 2009b).

Tabanus occidentalis var. ***modestus*** Wiedemann, 1828, *sensu* Fairchild & Burger (1994)

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 05–12.x.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 04–11.v.2012 (1♀ INPA); *idem*, 13–20.vii.2012 (1♀ INPA); *idem*, 16–23.xi.2012 (1♀ CEUFT); *idem*, 15–22.ii.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 17.vi.2012, Isca Equina, Lima, H.I.L. & Gomes, D. leg. (2♀ CEUFT; 2♀ INPA); *idem*, 23.ix.2012, *idem*, , Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT); *idem*, 29.xi.2012 (2♀ CEUFT).

Distribution: Honduras to Brazil (Mato Grosso).

Previous records: This is a species having a wide distribution with records throughout the Neotropics (Coscarón and Papavero 2009b).

Tabanus palpalis Brèthes, 1910

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°15′02.3″ S, 048°07′33.6″ W, 16–23.xi.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 29.xi.2012, Isca Equina, Lima, H.I.L. & Alves, L. leg. (1♀ CEUFT).

Distribution: Brazil (Tocantins, Mato Grosso, Goiás), Bolivia, Paraguai, Argentina (Salta, Misiones, Catamarca).

Previous records in Tocantins: Araguaína and Filadélfia municipalities (Henriques and Gorayeb 1993); Araguacema municipality (Henriques 1995).

****Tabanus xuthopogon*** Fairchild, 1984

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 22–29.iii.2013, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 10°15′02.3″ S, 048°07′33.6″ W, 15–22.ii.2013 (1♀ CEUFT); *idem*, 10°14′59.91″ S, 048°07′30.84″ W, 23.iii.2013, Isca Equina, Lima, H.I.L. & Aguiar,M.D. leg. (1♀ CEUFT); *idem*, 24.iii.2013 (1♀ CEUFT).

Updated Distribution: Colombia, Brazil (Amapá, Pará, Amazonas, Maranhão, Tocantins, Rondônia), Ecuador, Peru.

***Tabanus* sp. 1**

Comments: Characters such as shape and color of antenna and color of frontal callus show many morphological differences, which did not allow the species identification. The species belongs to the complex *occidentalis* and is likely to be a new species. However, the inclusion of new species in this complex is doubtful, because many of its species are polymorphic.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 17–24.viii.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 07–14.ix.2012 (1♀ CEUFT); *idem*, 28.ix–05.x.2012 (1♀ CEUFT); *idem*, 05–12.x.2012 (1♀ CEUFT).

***Tabanus* sp. 2**

Comments: This species shows overlapping of characters, and according to taxonomic keys (Coscarón and Papavero 2009a) can be identified as either Diachlorini or Tabanini. In this study it was considered a Tabanini, due to the shape of its antenna similar to the ones found on the genus *Tabanus*. Identification to the species level had the same difficulties found on *Tabanus* sp. 1.

Examined material: BRAZIL, *Tocantins*, Palmas, [Distrito de] Taquaruçu, Faz.[enda] Encantada, 10°14′57″ S, 048°07′35.4″ W, 07–14.ix.2012, Arm. malaise, Krolow, T.K. & Lima, H.I.L. leg. (1♀ CEUFT); *idem*, 14–21.ix.2012 (1♀ CEUFT); *idem*, 28.ix–05.x.2012 (1♀ CEUFT); *idem*, 26.x–02.xi.2012 (1♀ CEUFT).

DISCUSSION

The present work consisted of a tabanids sampling over the period of one year in a relictual area of Cerrado near Palmas city. As result, a total of 34 species and three varieties were recorded, from which 21 species and one variety are new occurrence records for the state. All species identified show distribution on neighbor states or wide distribution in the Neotropical region (Rafael et al. 1991; Henriques and Gorayeb 1993; Henriques 1995; Henriques and Rafael 1999; Barbosa et al. 2005; Gorayeb 2008). Among unidentified species three are possibly new species, but need deeper analysis and larger series to be described.

This was the first work aimed at discovering the tabanid fauna in the Tocantins state, and the results obtained show how incipient the knowledge on Tabanidae currently is, indicating that future collections can substantially increase the number of species records for the Cerrado.

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